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FISHES OF AFGHANISTAN, AN ANNOTATED CHECK-LIST

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Abstract

A check-list of the fishes reported from Afghanistan is given with details of distribution and synonyms. A total of 84 species are recorded from Afghanistan and an additional 18 species from contiguous or confluent drainages. The most speciose of the three major drainages is the Kabul River (27.7%) followed by the Amu Darya (20.4%) and the Helmand River (16.7%). The Kabul River basin is the smallest in area but contains elements from the Oriental fauna of the Indus River. The endorheic Helmand River basin has the largest area but is the most isolated hydrographically and has the least diverse fauna. The Amu Darya basin has a fauna derived mostly from the Caspian Sea basin. The fauna is dominated by Cyprinidae (56.9%) and Cobitidae (24.5%) with Siluriformes making up most of the remainder (11.8%). Minor families are the Acipenseridae, Salmonidae, Channidae and Mastacembelidae. Three major and five minor basins were considered and 67 species were found in only one basin, 15 in two basins, 12 in three basins, 7 in four basins and 1 (*Garra rossica*) in five basins. The fauna is a mixture of Oriental and Palaearctic species.

Résumé

Une liste des poissons retrouvés en Afghanistan est donnée avec des détails sur leurs aires de répartition et des synonymes. Un total de 84 espèces sont rapportées en Afghanistan et 18 espèces dans les drainages contigus ou affluents. Des trois drainages majeurs, celui avec le plus d'espèces est la rivière Kabul (27.7%) suivi par l'Amu Darya (20.4%) et la rivière Helmand (16.7%). Le bassin de la rivière Kabul couvre l'aire la plus petite mais contient des éléments de la faune orientale de l'Indus. Le bassin endoréique de la rivière Helmand couvre la région la plus étendue, mais ayant été le plus isolé au point de vue hydrographique, il contient donc le moins d'espèces. Le bassin de l'Amu Darya a une faune dérivée surtout du bassin de la mer Caspienne. La faune est dominée par les Cyprinidae (56.9%) et les Cobitidae (24.5%), les Siluriformes composant presque tout le reste (11.8%). Les familles mineures sont les Acipenseridae, les Salmonidae, les Channidae et les Mastacembelidae. Trois bassins majeurs et cinq mineurs ont été examinés et 67 espèces ont été trouvées dans un bassin seulement, 15 dans deux bassins, 12 dans trois bassins, 7 dans 4 bassins et 1 espèce (*Garra rossica*) dans 5 bassins. La faune est un mélange d'espèces orientales et paléoartiques.

Introduction

A list of fishes reported from Afghanistan was compiled as part of continuing studies on the systematics of fishes of southwest Asia. There has not been a compilation for fishes reported from Afghanistan since the work of Hora (1933b) and a number of revisionary works and field collections have both added to and altered the list.

Afghanistan is not a natural area of southwest Asia and the list presented here draws on distributional information from adjacent countries. A brief review of works on fishes of Afghanistan is given below. Details of distribution, including attempts to clarify obscure locality data, and synonymies are given within the list itself. A section on hydrography describes the waters of Afghanistan to facilitate comprehension of the distribution data in the list and includes some variant spellings for locality names.

The first report of significance on the fishes of Afghanistan was written by McClelland (1842) based on collections made by William Griffith in the three major drainage basins of the country, the Helmand, Amu Darya, and Kabul. Unfortunately, some collections "may have fallen into improper hands" and others "were spoiled in consequence of the jolting motion of the camels" or "were kept merely in salt" (McClelland 1842: 561). As a result, species were described from damaged specimens or from drawings only, and some of McClelland's species are of uncertain systematic status. Hora (1927) has examined and commented on the fish drawings in the Library of the Asiatic Society of Bengal from the collection of Alexander Burnes made by P.B. Lord during a mission to Kabul in 1836-1838. The provenance of specimens reported from the Kabul River is uncertain and may refer to localities outside Afghanistan, although it seems likely that three drawings of *Schizothorax* species are from the upper reaches of the Kabul River. Hora (1929) examined specimens in the British Museum (Natural History) of two species of Cobitidae collected by William Griffith in Afghanistan and was able to resolve problems of their distribution and systematic status. In 1932 Hora was also able to clarify the identity of *Glyptosternum reticulatum* McClelland.

Keyserling (1861) described six species including five new species of Cyprinidae from what is now Afghanistan based on collections made under the leadership of N. Chanikoff in 1858-1859.

An expedition to Yarkand was dispatched by the Government of India in 1873 under the leadership of Douglas Forsyth. The fishes collected were described by Day (1876, 1878). Two of the four species collected from the headwaters of the Amu Darya were described as new.

Day's (1880) article "Fishes of Afghanistan" referred to collections from what is now Pakistani Baluchistan and is of marginal interest.

Günther (1889) reported on collections made by J.E.T. Aitchison, naturalist of the Afghan Delimitation Commission, on a journey from Quetta through Sistan to the Hari Rud and the Murgab River on the southern, western and northwestern boundaries of Afghanistan. Three new species were described out of seven collected.

Alcock (1898) briefly listed four species collected by the Pamir Boundary Commission in the upper Amu Darya drainage.

N.A. Zarudnyi collected fishes in eastern Iran (Khorasan and Sistan) on three journeys in 1896, 1898 and 1900-1901. This material was deposited at the U.S.S.R. Academy of Sciences Zoological Institute in Leningrad and formed the subject of papers by Nikolsky (1897, 1899, 1900), Zarudnyi (1904), and Berg (1913, 1949). Nikolsky's works described five new species from drainages common to Iran and Afghanistan, and Berg (1913) described a new species from an area of eastern Khorasan, the exact locality of which is uncertain. It may have been in the Daqq-e Tondi drainage shared with Afghanistan or possibly from waters draining west into Iran. Other localities in Zarudnyi's collections are difficult to determine with accuracy.

Regan (1914) described a small (six species) collection of fishes made by G.E. Bruce in the Wana Toi, a tributary of the Gumal River in Pakistani Waziristan. Two of the species were described as new.

The Sistan basin was visited by A.H. McMahon and others in 1902-1904 with the Sistan Arbitration Commission and by officers of the Zoological Survey of India in 1918. The McMahon collections were described by Regan (1906), who found two new species out of five collected, and Chaudhuri (1909), who reported a new species of loach.

Annandale (1919) described two new species of *Discognathus* (= *Garra*) collected in Sistan and collaborated on a review (Annandale and Hora, 1920) of the fishes of Sistan based on both the McMahon and Zoological Survey of India collections.

The Zoological Survey of India collected fishes in the Chitral valley in 1929 under the leadership of B.N. Chopra. This material was examined by Hora (1934) who described five species, one of which was new, from this drainage which eventually becomes the Konar River in Afghanistan.

In two papers, published in 1933(b) and 1935, S.L. Hora reviewed the known fishes of Afghanistan and described collections from various localities in the Kabul, Amu Darya and Helmand systems collected by R. Maconachie, A.E. Farwell, E.W. Fletcher and others. These collections comprised nine species, one of which was described as new.

A collection of fish made in the upper Helmand River and in Sistan by S.A. Akhtar were presented to the Zoological Survey of India and described by Vijayalakshmanan (1950). One new species was described out of four collected.

Fowler and Steinitz (1956) described two new species of Schizothoracini from Iranian Sistan collected by P.J.F. Schumacher and deposited in the Academy of Natural Sciences of Philadelphia.

Bănărescu and Mirza (1965) described a new species of cobitid collected by K. Lindberg and purporting to come from the Farah River. This species is in the Hebrew University of Jerusalem Museum. Bănărescu and Nalbant (1966) reviewed the species of Cobitidae from Afghanistan and Iran based on material from several museums and specimens collected by the Danish Scientific Investigations in Iran, the Third Danish Expedition to Central Asia in Afghanistan and by K. Lindberg in Afghanistan.

Karaman (1969) described a new species of *Schizocypris* from the collections of the Zoological Museum in Hamburg obtained by Dr. Kullman from the Chamkani River drainage of Afghanistan.

Balon and Hensel (1970) examined the material from an expedition of the Zoological Institute of the College of Agriculture, Brno in 1967 which visited the Qonduz drainage and the environs of Jalalabad. Four species were described, one as new and these are deposited in the Slovak National Museum in Bratislava.

Bănărescu and Nalbant (1975) reported on nine species, one described as new, collected by Dr. Kullman in the Kabul and Chamkani River drainage and deposited in the Zoological Museum of Hamburg and the Institute of Biological Sciences in Bucharest.

Moravec and Amin (1978) examined parasites of fishes from northeast Afghanistan collected in 1974 from fifteen localities mostly in the Amu Darya and Kabul River drainages. The specimens are in the University of Bratislava in the collections of Karol Hensel.

Early information on fishes from drainages shared with the U.S.S.R. has been summarized by Berg (1948-1949). More recent works include Shaposhnikova (1950) on fishes of the Amu Darya with an analysis of distribution in different reaches of this river, Nikolski and Tzentilovich (1951) on fishes of the Murgab basin, Svetovidov (1952) on the ichthyofauna of the Amu Darya in southern Tadzhikistan, Turdakov (1963) on the fishes of Kirghizia and others.

The fishes of Pakistan have been studied extensively by M.R. Mirza and various co-workers. Much of this work, which includes drainages shared with Afghanistan, has been summarized in Mirza (1975).

The principal works on Iranian fishes are Berg's (1949) study mentioned earlier which brings together much previous work, Saadati's (1977) thesis on collections made in 1974 and 1976 by R.J. Behnke and members of the Department of the Environment, Tehran, and Coad (1979) based in part on collections made in Iranian Sistan and Baluchestan during 1977.

"?" after a locality name indicates that it could not be found in gazetteers or distinguished from other localities of the same name. Spelling of locality names follows the appropriate country gazetteer of the United States Board on Geographic Names. There are many variations on some geographic names and to reduce confusion markedly different variations in common use are given in parentheses in the section on hydrography.

Generic assignment of some species is disputed, particularly in the Cyprinidae and Cobitidae. The work of Mirza (1975) is followed here.

Hydrography

The source of surface water in Afghanistan is precipitation and consequent snow melt over the central mountain ranges extending from the Pamir mountain knot at the western termination of the Karakoram southwestward as the Hendo Kosh (= Hindu Kush) and its outliers such as the Selseleh-ye Kuh-e Baba, Selseleh-ye Band-e-Torkestan, Paropamisus Mountains, Selseleh-ye Safid Kuh, Selseleh-ye Siah Kuh and the ranges of the Hazarajat. Maximum flow is in the spring and early summer and minimum flow is in late summer to winter over much of the country. Many rivers dry up along sections of their course or are reduced to isolated pools during the latter period. This natural condition is aggravated by water abstraction for irrigation and other purposes and rivers tend to disappear before reaching their principal river or lake. In the Pamir and Nurestan areas of the northeast melting glaciers feed the rivers in July and August and there is minimum yield during winter because of freezing. Rivers along the northeast border of Afghanistan are affected by the monsoon of India and so have maximum flows twice a year in July to September and January to April. Springs and associated pools and marshes are additional habitats for fishes. Kariz (or ghanat) serve as refuges for small populations of fishes (Coad, 1980) throughout eastern, southern and southwestern Afghanistan. There are few freshwater lakes in Afghanistan, the largest being those of Sistan which lie mostly in Iran but are hydrographically part of Afghanistan. Major perennial rivers and their tributaries are the Amu Darya, Qonduz (= Kunduz), Kowkcheh (= Kokcha), Band-e Amir, Kabul, Lowgar (= Logar), Panjsher, Laghman, Konar (= Kunar), Sorkh Ab, Helmand, Arghandab and Hari Rud (Dupree, 1973) and presumably also the Morghab (= Murgab).

The waters of Afghanistan may be divided into eight drainage basins for convenience, of which the Kabul, Chamkani-Kurram and Zhob-Gowmal drain to the sea via the Indus River, the remainder being endorheic or arheic basins (Figures 1 and 2). A complete listing of all drainages and water bodies is not given since not all river basins have been equally well collected for fishes. Reference may be made to Dupree (1973) for additional information.

1. Kabul River basin

The Kabul River has its source at Sar Chashmeh (= Sar-i-Chashma) in the Selseleh-ye Kuh-e Paghman west of Kabul and flows east to join the Indus River north of Attock over a 350 km course. The river is dammed in several places including the Daruntah gorge. There are several major rivers

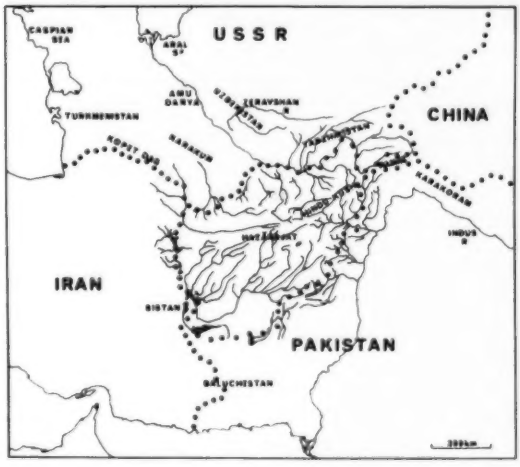

Figure 1. The position of Afghanistan in southwest Asia to show international boundaries, major drainages and major mountain ranges.

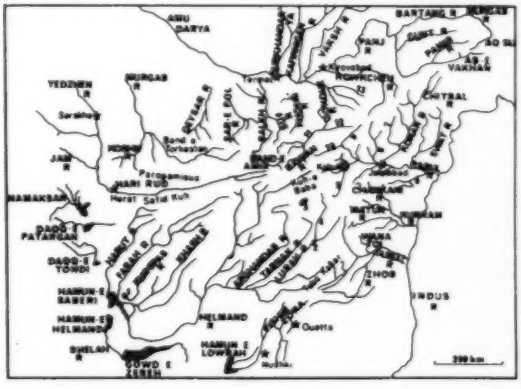

Figure 2. Drainage map of Afghanistan. 1 = Jehil-e Puzak, 2 = Ab-e Istadeh-ye Moqor, 3 = Dasht-e Navar, 4 = Ghazni River, 5 = Lowgar River, 6 = Khiali River, 7 = Pech River, 8 = Laghman River, 9 = Panjsher River, 10 = Gowr Band, 11 = Sorkh Ab, 12 = Andarab River, 13 = Khanabad River.

tributary to the Kabul. From the Hindu Kush to the north flows the Panjsher, about 320 km in length, which itself has a number of tributaries including the Gowr Band (= Ghorband or Chorband River). The Laghman River comprising the Alingar and Alishang Rivers enters the Kabul downriver from the Panjsher northwest of Jalalabad. The Konar (= Kunar) River joins the Kabul near Jalalabad after a course of 400 km from the Hindu Kush to the north. An upper tributary from the west is the Pech (= Pich) River while the Chitral River from the east flows into the upper Konar from Pakistan. The 200 km long Lowgar (= Logar) River, with several tributaries, rises in the eastern Hazarajat and flows east to enter the Kabul River east of Kabul. The Sorkh Rud (or Sorkh Ab but not the Sorkh Ab of the Qonduz River drainage) is a southern tributary of the Kabul River entering west of Jalalabad. The Paghman River is a small stream which rises in the Selseleh-ye Kuh-e Paghman and runs southeast past Paghman to join the Kabul River about 24 km from Kabul. The Chahiltran (?) stream is recorded by Hora (1935) as being a tributary of the Kabul River about 10 km west of Kabul. The Salang River (or South Salang Brook) flows from the southern slope of the Salang range, which lies north of Kabul, to enter the Panjsher River near Golbahar (Moravec and Amin, 1978).

The Swat and Khiali Rivers, northern and southern tributaries respectively of the Kabul River, are found in Pakistan east of the Afghan border. Ichthyological data from these drainages are included in the list (as are data from the Chitral River) since the species reported may prove to have a wider distribution when more collections are made.

2. Chamkani (= Kurram) River basin

The Chamkani River rises in the western Selseleh-ye Safid Kuh of eastern Afghanistan and flows southeast for about 320 km via Bannu to the Indus River. It is known as the Kurram River in its Pakistani portion. Ichthyological data are from the Pakistan reach near Parachinar (33°54'N, 70°06'E) and from the Matun River (= Pir Jani Kwarah) drainage in Afghanistan. The Matun River is a right bank tributary to the Chamkani River.

3. Zhob-Gowmal basin

The Zhob River lies wholly within northeast Pakistani Baluchistan rising in the Toba Kakar Range flowing east then northeast for about 370 km to join the Gowmal (= Gumal) River as a right bank tributary. The Gowmal River rises in Afghanistan and flows south-southeast to the Pakistan border and then in an eastérly direction to reach the Indus River when in flood. The Wana Toi (toi = stream) is a left bank tributary of the Gumal River in Pakistani Waziristan flowing from the north. Ichthyological data are from Pakistan drainages.

4. Pishin Lora basin

The Pishin Lora (lora = stream) rises in the central Toba Kakar Range of northeast Pakistani Baluchistan and flows southwest for about 400 km to the Hamun-i Lora (= Hamun-e Lowrah) on the Afghan border (hamun = salt waste or marshy lake). A section of its middle course lies in southern Afghanistan. Ichthyological data are based on collections from the Pakistani sections of this river.

5. Helmand-Sistan basin

The Helmand River has its source in the Selseleh-ye Kuh-e Baba east of Farakhulm near the source of the Kabul River. Its flow is south-westerly for about 1300 km (Dupree, 1973) or 1050 km (Anon., 1966) before it empties into the Sistan Lakes through several effluents. This river, with its tributaries, drains about 40% of Afghanistan and has the largest drainage basin. Only the Helmand River has a large and continuous flow at all times of the year. One of several dams in the Helmand basin is located on the Helmand River at Kajaki. Major tributaries of the Helmand, lying to the southeast, are the Arghandab River 560 km long, the Tarnak River 320 km long, and the Ghazni River 240 km long which flows into the salty Ab-e Istadeh-ye Moqor (= Ab-i-Istada lake) and continues as the Lurah (= Lora) River (not the Pishin Lora of Pakistan). The relationships of these rivers are shown in Figure 2. The Dasht-e-Navar (= Nawar) (dasht = plain or depression) lies at a height of 3000 m between the headwaters of the Arghandab and Ghazni Rivers and has no outlet. The intermittent Khash River lies to the northwest of the Helmand River. Its 480 km course flows from the western Hazarajat to join the Helmand near the Iranian border. The short Khospas River feeds Jehil-e Puzak (= Hamun-e Puzak) one of the Sistan lakes and lies northwest of the Khash River. The Farah River has its source in the Paropamisus Mountains and flows for 320 km southwest to the Hamun-e Saberi another Sistan lake west of Jehil-e Puzak. The Harut or Adraskan River flows from a

source southeast of Herat to the Hamun-e Saberi also. The Anar Darreh (darreh = stream) is a right bank tributary of the Harut in its lower course.

The Sistan basin consists of several lakes of variable extent and connection depending on the water flow from the rivers of Afghanistan. Most of the Sistan lakes lie in Iran but are here treated hydrographically as part of Afghanistan. The northern basins are fed by the Harut, Farah and Khospas Rivers and are usually the first to fill with water which eventually spreads to form an expanse of water, the Hamun-e Helmand, 160 km long by 8-24 km wide. Depth is usually between 1 and 3 metres and never exceeds 5 metres. The Shelah (= Shelagh) River carries overflow south and then east to the Gowd-e Zereh (= Gaud-i-Zirreh, gowd = depression), a salt flat in Afghanistan. This has a flushing effect and helps prevent an accumulation of salts and maintains a freshwater character for the Sistan lakes. Iranian Sistan is a network of irrigation canals dispersing the water from Afghanistan. The flooding of the lakes and the irrigation network facilitate fish movements to most parts of the basin and records of fish species are not given in more detail than "Sistan". Ichthyological data are available from several parts of the Helmand drainage and from the Sistan lakes.

Three endorheic or arheic basins lie on the Iran-Afghanistan border between the Sistan basin and the Hari Rud basin to the north. These are the Daqq-e Tondi (daqq = marsh), Daqq-e Patargan and the Namaksar Lake of which only the latter has been investigated cursorily for fishes in its Iranian drainage.

6. Hari Rud basin

The Hari Rud rises in the Selseleh-ye Kuh-e Baba and flows west for about 490 km before turning north as the Iran-Afghanistan border for 160 km. At Serakhs it enters the U.S.S.R. and is known as the Tedzhen, and is eventually lost in the Karakum. The Jam River is an Iranian tributary from the west. There are ichthyological data from drainages of all three countries.

7. Murgab River basin

The Murgab (or Morghab in Afghanistan) (not to be confused with the Murgab in the Pamirs) River has its source in the western Hindu Kush between the Paropamisus and the Selseleh-ye Band-e-Torkestan, flowing west then north to the Afghanistan-Turkmenistan border for 350 km, and for another 350 km into the Karakum Desert before being lost in the sands north of Merv or Mary (37°36'N, 61°50'E). Several ichthyological surveys of the Murgab have been carried out in its U.S.S.R. section and it is from these that much of the check-list data are obtained. The Kushka (Koshk in Afghanistan) River rises in the Paropamisus of Afghanistan and flows northwest and then north through Koshk-e Kohneh or Kushk in Afghanistan and Kushka in Turkmenistan to join the Murgab River in Turkmenistan.

8. Amu Darya basin

The Amu Darya (classical Oxus; darya = river or stream) forms the northern boundary of Afghanistan with Tadzhikistan, Uzbekistan and Turkmenistan of the U.S.S.R. Its total length is about 2500 km (figures vary in different gazetteers) in its course from the Pamirs to the Aral Sea. The lower 1300 km are wholly within the U.S.S.R. The Amu Darya is the second largest drainage basin in Afghanistan.

A number of fish species are known from the Aral Sea proper but do not penetrate into rivers. These are not included in the list. Species apparently restricted to the lower reaches of the Amu Darya are included as it is conceivable that they may penetrate upriver either naturally or through the agency of man. Records of species collected in the Zeravshan River and its two arms the Karadar'ya and Akdar'ya are not included in the list. The Zeravshan disappears in the desert north of Chardzhou and does not reach the Amu Darya although it was connected in the past and has a common fish fauna (Berg, 1948-1949).

In its upper reaches the Amu Darya is known as the Ab-e Vakhan (or Wakhan River) becoming the Ab-e Panja or Panj River (Pyandzh River in the U.S.S.R.) when it receives the Pamir River near Qal'eh-ye Panjeh. The Pamir River forms the border between southern Tadzhikistan and the Vakhan corridor of Afghanistan. The Aq Su (Aksu or Oksu) is found in the eastern part of the Vakhan corridor and forms part of the headwaters of the Murgab River which drains north then west as the Bartang River through Tadzhikistan to join the Panj River near Rushan. The Gunt River is another right bank tributary of the Panj River from Tadzhikistan joining at Khorog. The Panj River is called the Amu Darya by the Afghans when it is joined by the Kowkcheh (= Kokcha) River. In the U.S.S.R., however, Amu Darya is restricted to the river below the entry of the Vaksh River from Tadzhikistan. Other major right bank

tributaries of the Amu Darya are the Kafirnigan River from Tadzhikistan joining at Aivadzh and the Surkhandar'ya from Uzbekistan joining near Termez.

The Kowkcheh (= Kokcha) River flows from the Hindu Kush near the border of Afghanistan and Pakistan for 320 km north and then west into the Panj River. It receives several small tributaries in its upper reaches.

The Qonduz (= Kunduz) River enters the Amu Darya nears its junction with the Vaksh River. It is 480 km in length and is known by two different names for sections of its upper reaches. From its source to Bolowleh (= Bulola) it is the Bamian River, and from Bolowleh to Dowshi (= Doshi) the Sorkh Ab. The Andarab River joins at Dowshi as a right bank tributary and the river becomes the Qonduz at this point. The town of Qonduz is at 36°45'N, 68°51'E. The North Salang Brook is a tributary of the Andarab River draining north from the Salang Pass. The Payan Deh River (= Darra Ashraf) and the Magh stream (= Margh) are Sorkh Ab tributaries near Bazar-e Taleh and are about 6 km apart (Hora, 1935). A major right bank tributary of the lower Qonduz River is the Khanabad River. The town of Khanabad is at 36°41'N, 69°07'E.

The Kowkchek and Qonduz are the two major tributaries of the Amu Darya from Afghanistan. West of the Qonduz, several rivers drain towards but do not reach the Amu Darya, their waters being lost in the Turkestan Plains and the Karakum or extracted for irrigation. These rivers are included in the Amu Darya basin in the list. The Kholm (= Tashkurgan) River is about 190 km in length and flows almost due north from the northern Hindu Kush and is lost north of Tashkurgan or Kholm. The Balkh Ab or Balkh River is 480 km long and in its upper course it is known as the Band-e Amir River from its source in the Sang Zard near the Band-e Amir lakes until it is joined by the Suf River (= Darra Yusuf), a right bank tributary. The Band-e Amir flows westerly in its upper reaches before turning northward. The Ishkabad canal system on the plains drains off water from the Balkh River. The Sar-e-Pol River, and to its west the Qeysar River (= Ab-i-Qaisar), are two other rivers which flow from the Band-e Torkestan and are lost in the plains. Both are about 320 km long. These two rivers have not been studied ichthyologically.

Collection data are available from work on the Amu Darya and its tributaries in the U.S.S.R., in the Vakhan corridor of Afghanistan and in major tributaries of the Amu Darya from Afghanistan.

Faunal Supplementations

A number of species have been introduced to and have become established in the Aral Sea either in a deliberate stocking programme or accidentally (e.g. see Baimov, 1968; Baymov, 1970; Dergaleva and Markevich, 1976; Mordukhai-Boltovskoi, 1979). Some of these species have been reported to enter freshwater elsewhere in their range and may penetrate into the upper Amu Darya. None have been reported in the Amu Darya where it forms the northern border of Afghanistan, 1300 km from the Aral Sea. The U.S.S.R. has also been very active in stocking programmes for its southern republics and Afghanistan, unintentionally, may well acquire species new to its ichthyofauna from such programmes (e.g. Aliev, 1965; Borisova, 1972; Dergeleva and Markevich, 1976; Dukravets and Machulin, 1978).

A fish research and breeding centre was established at Daruntah (34°28'N, 70°22'E) in Afghanistan with Chinese help in 1967 and four varieties of carp were introduced (species not specified; Dupree, 1973). Moravec and Amin (1978) listed native and introduced species of fish from Afghanistan examined by them for parasites. There appears to be no other published information on introduced species and whether they have become established in Afghan waters. Only those species reported from Afghanistan or contiguous water bodies are included in the check-list.

Check-List

The arrangement of orders and families follows Nelson (1976) and genera and species are listed alphabetically in each family. Species marked * have not been reported from Afghanistan but occur in adjacent or contiguous drainage basins. Species marked # have been introduced into Afghanistan.

ORDER 1. ACIPENSERIFORMES

FAMILY 1. ACIPENSERIDAE

1. *Acipenser nudiventris* Lovetzky, 1828. Amu Darya from the Aral Sea to Kirovabad on the Panj River but almost entirely exterminated (Berg, 1948-1949).

2. *Pseudoscaphirhynchus hermanni* (Kessler, 1877). Mouths of Amu Darya upriver to Termez on the Afghan border with Uzbekistan (Berg, 1948-1949).

3. *Pseudoscaphirhynchus kaufmanni* (Bogdanow, 1874). Delta of Amu Darya to the Panj River (Berg, 1948-1949).

ORDER 2. SALMONIFORMES

FAMILY 2. ESOCIDAE

1. * *Esox lucius* (Linnaeus, 1758). Amu Darya from the Aral Sea to Pitnyak (41°12′N, 61°21′E in the lower reaches of the Amu Darya) (Berg, 1948-1949).

FAMILY 3. SALMONIDAE

1. *Salmo gairdneri* Richardson, 1836. About 500,000 fingerlings have been released from the Qarghah fisheries near Kabul since 1966 into the Salang and Panjsher Rivers (Dupree, 1973).

2. *Salmo trutta* Linnaeus, 1758. As *S. t. aralensis* Berg, 1908 in the Amu Darya from the Aral Sea to Turtkul (41°28′N, 61°00′E), Kafirnigan River basin and therefore presumably Afghanistan (Berg, 1948-1949; Maksunov, 1971). Kuderskii (1974) suggested that some large trout of the upper Amu Darya are this subspecies. *Salmo trutta oxianus* Kessler, 1874 is found in the upper reaches of the Amu Darya, Panj River and Bamian River drainage including at Shekari (34°54′N, 68°02′E), Sorkh Ab drainage, Kowkchek River and North Salang Brook (a tributary of the Andarab River) (Hora, 1933b; 1935; Berg, 1948-1949; Balon and Hensel, 1970: Maksunov, 1971; Moravec and Amin, 1978). Berg in Hora (1933b) considered the trout of Afghanistan to be *Salmo trutta aralensis* morpha *oxianus*. *S. orientalis* McClelland, 1842 is a synonym. *S. trutta fario* Linnaeus, 1758 has been introduced to Chitral and Swat valleys in Pakistan (Mirza, 1976) and the Pishin Lora drainage (Mirza and Naik, 1965).

ORDER 3. CYPRINIFORMES

FAMILY 4. CYPRINIDAE

This family contains many species in the Oriental Region and there are conflicting views on the generic placement of some species. Mirza (1975) is followed for this list.

Vinciguerra (1915-1917) reported *Schizothorax kessleri* Herzenstein, 1889 from the Murgab River (? locality). Berg (1948-1949) placed this species in *S. pseudaksiensis* Herzenstein, 1889 and did not confirm its presence in the Murgab River. It is therefore omitted from this list.

1. * *Abramis brama* (Linnaeus, 1758). As *A. b. orientalis* Berg, 1949 in lakes along the Amu Darya as far as Tash-sak (?) above Turtkul (41°28′N, 61°00′E) (Berg, 1948-1949). Bănărescu (1964) indicated a distribution in the higher reaches of the Amu Darya in Afghanistan.

2. * *Abramis sapa* (Pallas, 1811). As *A. s. bergi* Belyaev, 1929 in the Amu Darya upriver to Pitnyak (41°12′N, 61°20′E) and as *A. s. b.* natio *aralensis* Tjapkin, 1939 (Berg, 1948-1949).

3. *Alburnoides bipunctatus* (Bloch, 1782). As *A. b. eichwaldi* (Filippi, 1863) in Turkmenia from the Murgab River to Archman (38°33′N, 57°09′E), upper Amu Darya (Berg, 1948-1949), and in the Margh (probably Magh) stream, a tributary of the Sorkh Ab at Tala (presumably Bazar-e-Taleh (35°25′N, 68°14′E)) (Hora, 1935). A single small specimen recorded from the Helmand basin (Sistan) of Iran by Saadati (1977) may be an error.

4. *Alburnoides taeniatus* (Kessler, 1874). Amu Darya from the delta to the mouth of the Kafirnigan River, common above Termez on the Afghan border with Uzbekistan (Berg, 1948-1949), Qonduz River at Qonduz and Khanabad River at

Khanabad (Moravec and Amin, 1978). As *A. t. taeniatus* nat. *nikolskyi* in the Amu Darya (Turdakov and Piskarev, 1955).

5. *Amblypharyngodon mola* (Hamilton, 1822). Reported from the Kabul River at Jalalabad as *Leuciscus mola* by McClelland (1842).

6. *Aspidoparia jaya* (Hamilton, 1822). Reported from the Kabul River at Jalalabad by McClelland (1842) as *Leuciscus margarodes* (McClelland, 1838). *L. margarodes* is considered to be a synonym of *A. jayi* by Day (1875-1878) but Günther (1868) regarded its affinities as uncertain.

7. * *Aspidoparia morar* (Hamilton, 1822). Southeastern Iran, Swat River drainage of Pakistan and presumably Afghanistan (Mirza, 1973; Coad, 1979).

8. *Aspiolucius esocinus* (Kessler, 1874). Amu Darya and lower reaches of its tributaries in Tadzhikistan, and lower Panj River (Berg, 1948-1949; Zharov, 1973).

9. *Aspius aspius* (Linnaeus, 1758). As *A. a. taeniatus* natio *iblioides* (Kessler, 1872) in the Amu Darya from the Aral Sea to the Kafirnigan River (Berg, 1948-1949). Babeyev (1977) listed this species as *A. aspius iblioides*.

10. *Barbus brachycephalus* Kessler, 1872. Amu Darya from the Aral Sea to Fayzabadkala (37°19′N, 68°58′E) on the Panj River (Berg, 1948-1949; Maksunov, 1971).

11. *Barbus capito* (Güldenstädt, 1773). As *B. capito conocephalus* Kessler, 1872 in the Amu Darya from the Aral Sea to Fayzabadkala (37°19′N, 68°58′E) on the Panj River, Qonduz River at Qonduz and its drainage (Berg, 1948-1949; Maksunov, 1971; Moravec and Amin, 1978), Andarab River at Banu (presumably Banow 35°38′N, 69°15′E) as a hybrid with a *Schizothorax* sp. (Hora, 1935). Listed as *B. c. capito* (Güldenstädt, 1773) by Karaman (1971).

12. *Barilius vagra* (Hamilton, 1822). Rivulet at Khost (Khowst or Matun where Matun River is listed at 33°19′N, 69°59′E in the Chamkani River drainage), Kabul River at Jalalabad (Bănărescu and Nalbant, 1975), and near Daruntah (Moravec and Amin, 1978), Zhob River d.ainage (Mirza, 1974), the Wana Toi, a tributary of the Gumal River in Pakistan (32°20′N, 69°30′E) (Regan, 1914). *Opsarus (sic, = Opsarius) bicirratus* McClelland, 1842 (from Jalalabad) and *Opsarius piscatorius* McClelland, 1842 (from Seharanpore [?]) are synonyms (Day, 1875-1878; Mirza, 1970).

13. *Capoeta capoeta* (Güldenstädt, 1773). As *C. c. heratensis* (Keyserling, 1861) in the Helmand River, Harirud at Herat and its drainage in Iran, Tedzhen and Murgab Rivers, Qonduz River and north Afghanistan, and as *C. c. h.* natio *steindachneri* (Kessler, 1872) in the upper Amu Darya from Termez on the Afghan border with Uzbekistan to Kirovabad on the Panj River (Berg, 1948-1949; Amanov, 1970; Saadati, 1977). Reported from the Qonduz River at Qonduz and the Khanabad River at Khanabad as *C. heratensis steindachneri* by Moravec and Amin (1978). *C. steindachneri* Kessler, 1872 reported by Günther (1889) from the Koshk River at Koshk-e Kohneh (34°52′N, 62°31′E) and from Nushki in Pakistani Baluchistan and *Scaphiodon asmussii* Keyserling, 1861 from warm springs at Sultan Karaul (?), 13 km northeast of Herat, are synonyms (Hora, 1933b; Karaman, 1969). Berg (1933; 1949) noted that Günther's record from Nushki is in error because labels were mixed up. As *C. c. gracilis* (Keyserling, 1861) in Turkmenia, north slope of Kopet Dag east nearly to Archman (38°33′N, 57°09′E) (Berg, 1948-1949). *Capoeta gibbosa* Nikolsky, 1897 from Bukhsani in southeastern Khorasan, Iran (locality uncertain, may be in a drainage shared with Afghanistan) is a synonym (Karaman, 1969) although Berg (1949) retained it as a distinct species.

14. * *Capoeta fusca* Nikolsky, 1897. Reported from the Iranian drainage of the Namakzar (34°00′N, 60°30′E) which lies on the Iran-Afghanistan border (Nikolsky, 1897; Berg, 1949; Saadati, 1977). *C. nudiventris* Nikolsky, 1897 is a synonym (Karaman, 1969).

15. *Capoetobrama kuschakewitschi* (Kessler, 1872). Amu Darya to the Panj River at Kirovabad and Fayzabadkala (37°19′N, 68°58′E), Surkhan and Kafirnigan Rivers (Berg, 1948-1949), Qonduz River at Qonduz and the Khanabad River at Khanabad (Moravec and Amin, 1978). Turdakov and Piskarev (1955) place Amu Darya specimens in *C. k. kuschakewitschi* var. *macrophthalmus*.

16. # *Carassius auratus* (Linnaeus, 1758). Kabul River near Daruntah and breeding pools at Daruntah (Moravec and Amin, 1978), Sistan (Coad, 1980), Pishin Lora drainage (Mirza and Naik, 1965) lower Amu Darya drainage (Shaposhnikova, 1950; Turdakov, 1963).

17. * *Chalcalburnus chalcoides* (Güldenstädt, 1772). As *C. chalcoides aralensis* (Berg, 1923) in the Amu Darya from the Aral Sea to Kushkantau (?) (Berg, 1948-1949).

18. *Cirrhinus burnesiana* McClelland, 1842. Described from Jalalabad this species is of uncertain status. Günther (1868) placed it in *Tylognathus*.

19. *Cirrhinus reba* (Hamilton, 1822). Reported from the Kabul River by McClelland (1842) as *Gobio limnophilus* McClelland, 1834 and synonymised with *Cirrhinus reba* in Day (1875-1878).

20. *Crossocheilus latius* (Hamilton, 1822). Kurram River (Chamkani River in its Afghan reaches) near Parachinar in Pakistan (Ahmad and Mirza, 1964), and as *C. l. diplochilus* (Heckel, 1838) from the Wana Toi, a tributary of the Gumal River in Pakistan (32°20′N, 60°30′E) (Regan, 1914), Zhob River drainage in Pakistan (Mirza, 1974), Khost (Khowst or Matun 33°19′N, 69°59′E) in the Chamkani River drainage (Bănărescu and Nalbant, 1975), and Quetta and Pishin in Pakistani Baluchistan (Day, 1880; Zugmayer, 1913). *Tylognathus barbatulus* Heckel, 1844 is a synonym (Berg, 1933; Mirza, 1972).

21. # *Ctenopharyngodon idella* (Valenciennes, 1844). Breeding pools at Daruntah in the Kabul River drainage (Moravec and Amin, 1978).

22. *Cyprinion watsoni* (Day, 1872). River at Kushk (Koshk-e Kohneh 34°52′N, 62°31′E) in northwest Afghanistan (Berg (1949) considered this record by Günther (1889) to be in error because of mixed up labels) and Nushki and Quetta in Pakistani Baluchistan (Day, 1880; Günther, 1889; Berg, 1949), Khost (Khowst or Matun 33°19′N, 69°59′E), and between Khost and Mangal (34°08′N, 69°43′E) in the Chamkani River drainage (Bănărescu and Nalbant, 1975), Sistan (Regan, 1906; Berg, 1949), Zhob River drainage, Pishin Lora drainage (Mirza, 1964), Kurram River near Parachinar in Pakistan (Ahmad and Mirza, 1964), Wana Toi, a tributary of the Gumal River in Pakistan (32°20′N, 69°30′E) (Regan, 1914). *Scaphiodon irregularis* Day, 1872, *Scaphiodon microphthalmum* Day, 1880, *Barbus milesi* Day, 1880, *Cirrhina afghana* Günther, 1889 and *Scaphiodon macmahoni* Regan, 1906 are synonyms (Berg, 1933; Karaman, 1971). Mirza (1969) recognized *Cyprinion microphthalmum* and *Cyprinion milesi* as distinct species.

23. *Cyprinus carpio* Linnaeus, 1758. Amu Darya from the Aral Sea to the Panj River, Murgab River (Berg, 1948-1949), Tedzhen River (Muhomedieva, 1967), Lake Gusar (?) in Amu Darya drainage of Afghanistan (Bănărescu and Nalbant, 1975), Qonduz River at Qonduz, and the Khanabad River at Khanabad (Moravec and Amin, 1978).

24. *Danio devario* (Hamilton, 1822). Reported from the Kabul River by McClelland (1842) as *Perilimpus (sic, = Perilampus) ostreographus* McClelland, 1839 and placed in *Danio devario* in Day (1875-1878).

25. *Esomus danricus* (Hamilton, 1822). Reported from the Kabul River by McClelland (1842) as *Perilimpus (sic) sutiha* (Hamilton, 1822), and synonymized with *Esomus* (or *Nuria*) *danrica* in Day (1875-1878).

26. * *Garra gotyla* (Gray, 1832). Zhob River drainage (Mirza, 1974).

27. *Garra rossica* (Nikolsky, 1900). Tedzhen, Murgab and Koshk Rivers, Shila (?Shelah) River in Afghanistan, Pishin Lora drainage, Helmand River, Sistan, Wana Toi, a tributary of the Gumal River in Pakistan (32°20′N, 69°30′E) (Berg, 1948-1949; Mirza, 1972, 1974). *Discognathus phryne* Annandale, 1919 and *Discognathus wanae* Regan, 1914 are synonyms (Menon, 1964). *G. wanae* may be a distinct species according to Mirza (1975). Specimens from the Helmand and Koshk Rivers identified by Günther (1889) as *Discognathus lamta* (Hamilton, 1822) were *G. rossica* (Berg, 1933). *Discognathus variabilis* Heckel, 1843 reported from the Harut River drainage at Anardareh (Anar Darreh, 32°46′N, 61°39′E) and from Nih (?) and Seri-Tschah (?) by Keyserling (1861) may have been this species. *D. variabilis* Heckel, 1843 reported from Sistan by Nikolsky (1899) and by Regan (1906) were this species (Menon, 1964).

28. * *Gara rufa* Heckel, 1843. Berg (1913) described *Garra persica* from Kiabad or Kjabad in Zirkuh or Zirckuch, an area of eastern Khorasan in Iran which may be Kuh-e Ziri (32°48′N, 59°50′E) and may lie in the Daqq-e Tondi drainage which is shared with Afghanistan. Menon (1964) placed *G. persica* in *Garra rufa obtusa* Heckel, 1843. This uncertain locality may be waters draining west into Iran.

29. *Gobio gobio* Linnaeus, 1758. As *G. g. lepidolaemus* Kessler, 1872 in the Amu Darya at Termez on the Afghan border with Uzbekistan and down river, Kafirnigan River, Tedzhen and its drainage in Iran, Murgab and Koshk Rivers (Günther, 1889; Berg, 1948-1949; Saadati, 1977). *Bungia nigrescens* Keyserling, 1861 from the Harirud at Herat is a synonym (Berg, 1949).

30. # *Hemiculter leucisculus* (Basilewsky, 1855). Qonduz River at Qonduz and the Khanabad River at Khanabad (Moravec and Amin, 1978).

31. * *Hemigarra elegans* (Günther, 1868). As *H. e. adiscus* (Annandale, 1919) from Sistan (Karaman, 1971). Annandale (1919) described *adiscus* as a species of *Discognathus* and Menon (1964) considered it to resemble *Crossocheilus diplochilus* (Heckel, 1838) (see *Crossocheilus latius*).

32. # *Hypophthalmichthys molitrix* (Valenciennes, 1844). Breeding pools at Daruntah, Kabul River drainage (Moravec and Amin, 1978).

33. *Labeo angra* (Hamilton, 1822). Reported from the Kabul River at Jalalabad as *Cyprinus angra* by McClelland (1842). Day (1875-1878) placed *C. angra* in *Labeo*.

34. *Labeo dero* (Hamilton, 1822). Kabul River near Daruntah (Moravec and Amin, 1978).

35. *Labeo diplostomus* (Heckel, 1838). Reported from Lolpore (?), Kabul River by McClelland (1842) as *Gobio malacostomus* McClelland, 1838. Placed in *L. diplostomus* in Day (1875-1878).

36. *Labeo dyocheilus* (McClelland, 1839). Reported from the Kabul River as *Gobio bicolor* McClelland, 1839 by McClelland (1842). Day (1875-1878) placed this species in synonymy with *Labeo dyocheilus*.

37. *Labeo gonius* (Hamilton, 1822). Reported from the Kabul River at Jalalabad as *Cyprinus curchius* Hamilton, 1822, by McClelland (1842). Day (1875-1878) synonymized *C. curchius* with *Labeo gonius* while Günther (1868) placed it in *Labeo cursa* (Hamilton, 1822).

38. *Labeo pangusia* (Hamilton, 1822). Reported from the Kabul River by McClelland (1842) as *Gobio pangusia*.

39. * *Leuciscus idus* (Linnaeus, 1758). As *L. i. oxianus* (Kessler, 1872) in the Amu Darya from the Aral Sea to Pitnyak (41°12′N, 61°20′E) (Berg, 1948-1949).

40. *Leuciscus latus* (Keyserling, 1861). Harirud at Herat, Murgab and Tedzhen Rivers, probably a subspecies of *L. lehmanni* (Svetovidova, 1967). *Squalius transcaspiensis* Berg, 1898, from the Tedzhen, is a synonym (Berg, 1948-1949).

41. * *Leuciscus lehmanni* Brandt, 1852. Surkhandar'ya and Kafirnigan Rivers. Closely related to *L. leuciscus baicalensis* natio *kirgisorum* Berg, 1913 from the Kafirnigan River (Berg, 1948-1949; Shaposhnikova, 1950).

42. * *Leuciscus leuciscus* (Linnaeus, 1758). As *L. l. baicalensis* natio *kirgisorum* Berg, 1913 in the Kafirnigan River (Berg, 1948-1949). Turdakov (1963) and Svetovidov (1967) listed this species as *L. leuciscus kirgisorum* Berg, 1913.

43. *Pelecus cultratus* (Linnaeus, 1758). Amu Darya from the Aral Sea to the Panj River (Berg, 1948-1949).

44. # *Pseudorasbora parva* (Schlegel, 1842). Khanabad River at Khanabad (Moravec and Amin, 1978).

45. *Ptychobarbus conirostris* Steindachner, 1866. Afghanistan (Mirza and Hameed, 1975). No other record, occurrence and distribution in Afghanistan is uncertain.

46. *Puntius conchonius* (Hamilton, 1822). Kabul River at Jalalabad, and between Khost (Khowst or Matun 33°19′N, 69°59′E) in Afghanistan and Peshawar in Pakistan in the Indus (?Chamkani) River drainage (Bănărescu and Nalbant, 1975), and the Kabul River near Daruntah (Moravec and Amin, 1978).

47. *Puntius sarana* (Hamilton, 1822). Reported from the Kabul River by McClelland (1842) as *Systomus immaculatus* McClelland, 1839 which Day (1875-1878) synonymized with *Barbus* (or *Puntius*) *sarana*.

48. *Puntius sophore* (Hamilton, 1822). McClelland (1842) reported two species, *Systomus sophore* and *Systomus chrysopterus* McClelland, 1839, from the Kabul River. Mirza (1971) has placed the latter in *Puntius sophore*. Day (1875-1878) considered *Systomus sophore* to be a synonym of *Barbus stigma* (Hamilton, 1822).

49. * *Puntius ticto* (Hamilton, 1822). Lower Swat River drainage of Pakistan (Mirza, 1973).

50. # *Rhodeus sinensis* Günther, 1868. Breeding pools at Daruntah, Kabul River drainage (Moravec and Amin, 1978).

51. *Rutilus rutilus* (Linnaeus, 1758). As *R. r. aralensis* Berg, 1916 in the Amu Darya from the Aral Sea to Petroaleksandrovsk (41°28′N, 61°00′E) and Pitnyak (41°12′N, 61°20′E) in lakes (Berg, 1948-1949). As *R. r. bucharensis* (Nikolskiy, 1933) in the Amu Darya, tributaries and adjacent flood plain lakes upriver from Termez on the Afghan border with Uzbekistan (Amanov, 1974). Berg (1948-1949) regarded this subspecies as a natio of *R. r. aralensis*. *R. rutilus* (no subspecies listed) is reported from a pool near the Khanabad River at Khanabad (Moravec and Amin, 1978).

52. *Salmostoma bacaila* (Hamilton, 1822). Reported from the Kabul River as *Opsarius baicala (sic, = bacaila)* by McClelland (1842).

53. * *Salmostoma punjabensis* (Day, 1872). Reported from the Swat River drainage of Pakistan (Mirza, 1973).

54. * *Scardinius erythrophthalmus* (Linnaeus, 1758). Amu Darya from the Aral Sea to Pitnyak (41°12′N, 61°20′E) (Berg, 1948-1949). Banarescu (1964) indicated a distribution in the upper Amu Darya in Afghanistan.

55. *Schizocypris brucei* Regan, 1914. Sistan (Annandale and Hora, 1920), Wana Toi, a tributary of the Gumal River in Pakistan (32°20′N, 69°30′E) (Regan, 1914), Zhob River drainage of Pakistan (Mirza, 1974), Kurram River (Mirza and Hameed, 1975).

56. *Schizocypris ladigesi* Karaman, 1969. Kankai (?) River between Khost (Khowst or Matun 33°19′N, 69°59′E) and Thangall (Mangal 34°08′N, 69°43′E) in the Chamkani River drainage (Karaman, 1969). Khost, and Ali Khel (33°57′N, 69°43′E) north of Khost, and Jalalabad (Bănărescu and Nalbant, 1975).

57. *Schizopygopsis stoliczkae* Steindachner, 1866. Upper Amu Darya in the Pamirs, upper Helmand River, and Indus River basin (but not apparently in Kabul River). As infraspecies or subspecies *sewerzowi* Herzenstein, 1890 in the delta of Helmand River and upper Amu Darya in the Pamirs (Day, 1876; Alcock, 1898; Berg, 1948-1949; Regan, 1906; Vijayalakshmanan, 1950; Mirza and Hameed, 1975).

58. * *Schizothorax anjac* (Fowler and Steinitz, 1956). Zabol (31°02′N, 61°30′E) in Sistan (Fowler and Steinitz, 1956). Regarded as a synonym of *Schizothorax zarudnyi* by Saadati (1977).

59. *Schizothorax barbatus* McClelland, 1842. Described from the Kabul River at Jalalabad by McClelland (1842). Status uncertain.

60. *Schizothorax chrysochlora* (McClelland, 1842). Lolpore (?), Kabul River (McClelland, 1842), Panjsher River, Ali Khel (33°57′N, 69°43′E) north of Khost and Khost (Khowst or Matun (33°19′N, 69°59′E)) in Chamkani River drainage (Bănărescu and Nalbant, 1975), Lowgar River (Hora, 1935), and Kabul River near Daruntah (Moravec and Amin, 1978).

61. *Schizothorax edeniana* McClelland, 1842. Described from the Kabul River at Koti-i-Ashruf (Kowt-e-'Ashrow (34°27′N, 68°48′E)), Mydan valley (?Kowt-e-' Ashrow), and Sar Chashmeh (34°26′N, 68°39′E) by McClelland (1842). Status uncertain but Day (1876) suggested it may be a synonym of *Schizothorax irregularis* Day, 1876.

62. *Schizothorax esocinus* (Heckel, 1838). Afghanistan (Mirza and Hameed, 1975), Kabul and Helmand River drainages (McClelland, 1842; Hora, 1933b; Berg, 1949), Chitral River drainage (Mirza, 1973). *Schizothorax punctatus* Day, 1876 and possibly *Racoma nobilis* McClelland, 1842 are synonyms (Hora, 1934).

63. *Schizothorax gobioides* (McClelland, 1842). Described from the Bamian River in the genus *Racoma* by McClelland (1842). Status uncertain.

64. *Schizothorax intermedius* McClelland, 1842. *S. i.* forma *typica* found in the upper Amu Darya, Panj River, Gunt River at Khorog (37°30′N, 71°36′E), Bartang River at Rushan (= Kalai-Vamar 37°57′N, 71°33′E), Tanymas River at Kyzyltokoy (?) (river listed at 38°25′N, 72°40′E in the drainage of the Bartang River), Pamir River, Indus and Helmand River basins, *S. i.* morpha *eurystomus* Kessler, 1872 in the upper Helmand River and Amu Darya (*Oreinus plagiostomus* McClelland, 1842 and *Schizothorax minutus* Kessler, 1872 are synonyms), and *S. i.* morpha *fedtschenkoi* Kessler, 1872 in the Helmand River, Konar River, Kabul River at Jalalabad, Amu Darya and the Aq Su (*S. regeli* Herzenstein, 1889 is a synonym and also possibly *Racoma labiatus* McClelland, 1842 and *Racoma brevis* McClelland, 1842) (McClelland, 1842; Kessler, 1874; Alcock, 1898; Vinciguerra, 1915-1917; Berg, 1932b; Berg, 1948-1949; Balon and Hensel, 1970). Also reported from the Tarnak River, Band-e-Amir basin, (brooklets flowing out of Band-e-Amir lakes), Koshk River, Jam River and Lowgar River without morpha being cited (McClelland, 1842; Günther, 1889; Hora, 1933b; 1935; Moravec and Amin, 1978). Günther's (1889) record from the Koshk River is in error because of mixed up labels (Berg, 1933; 1949).

65. *Schizothorax labiatus* (McClelland, 1842). Farakhollum (Farakhulm 34°31′N, 68°08′E) about 16 km south of Gardan Dival (34°30′N, 68°15′E) (Vijayalakshmanan, 1950), Panjsher River near Golbahar (35°09′N, 69°17′E) (Moravec and Amin, 1978), Konar River and Kabul River near Jalalabad (McClelland, 1842; Berg, 1949), Zhob River, Chitral and Swat River drainages of Pakistan (Mirza, 1973; 1974). *Schizothorax ritchieana* McClelland, 1842 from the Helmand

River is a synonym (Mirza, 1972) although Berg (1949) placed it in *Schizothorax intermedius*.

66. *Schizothorax microcephalus* Day, 1876. P'anja or Panjah, waters going to the Oxus (Day, 1876; 1878). Alcock (1898) stated that Day's specimen was from Kala Panja (i.e. Qal'eh-ye Panjeh (37°00'N, 72°35'E) on the Panj River and the type is lost. It may be a synonym of *S. intermedius*.

67. *Schizothorax pelzami* Kessler, 1870. Murgab and Tedzhen Rivers, Iranian drainages of Tedzhen River, Germab River at Geok-tepe (38°09'N, 57°58'E) (Berg, 1948-1949; Saadati, 1977). *S. raulinsii* Günther, 1889 from the Harirud near Khusan (?) is a synonym (Berg, 1933; 1949).

68. *Schizothorax plagiostomus* Heckel, 1838. Afghanistan, Chitral and Swat valleys of Pakistan, Zhob River drainage (Mirza, 1973; 1974). *Oreinus sinuatus* Heckel, 1838 is a synonym (Mirza, 1973) and is listed from Dasht-e-Navar, 150 km north of Ghazni (*sic*, but Dasht-e-Navar at 33°44'N, 67°45'E lies about 60 km west of Ghazni on maps), Zensai (?) on the Pich River (Bănărescu and Nalbant, 1975), Salang River, Panjsher River at Golbahar (35°09'N, 69°17'E) and Paghman River at Paghman (34°36'N, 68°57'E) in the Kabul River drainage (Hora, 1933b; Moravec and Amin, 1978), the Kurram River near Parachinar in Pakistan (Ahmad and Mirza, 1964), Farakhollum (Farakhulm 34°31'N, 68°08'E) about 16 km south of Gardan Dival in the Helmand River drainage and at Gardan Dival (34°30'N, 68°15'E). *Oreinus griffithi* McClelland, 1842 from the Konar River and Sar Chashmeh (34°26'N, 68°39'E) is a synonym (McClelland, 1842; Hora, 1935; Vijayalakshmanan, 1950), as is *Oreinus maculatus* McClelland, 1839 from the Kabul River, Gandomak and the Ali Musjid stream in the Khyber Pass (McClelland 1842; Hora, 1933b; Mirza and Naik, 1969).

69. * *Schizothorax schumacheri* Fowler and Steinitz, 1956. Zabol (31°02'N, 61°30'E) in Sistan (Fowler and Steinitz, 1956). Regarded as a synonym of *Schizothorax intermedius* by Saadati (1977).

70. *Schizothorax zarudnyi* (Nikolsky, 1897). Sistan (Nikolsky, 1897). *Barbus microlepis* Keyserling, 1861 from the Harut or Adraskan River drainage at Anardareh (Anar Darreh, 32°46'N, 61°39'E) is a synonym (Hora, 1933b; Berg, 1949).

71. *Tor putitora* (Hamilton, 1822). Kabul River near Daruntah and its drainage (Mirza, 1973; Mirza and Awan, 1976; Moravec and Amin, 1978). *Cyprinus mosal* Hamilton, 1822 from Jalalabad is listed as a synonym in Mirza (1970) but is recognized as a species in Mirza (1975).

72. * *Tor zhobensis* Mirza, 1967. Zhob River basin, Pakistan (Mirza, 1967).

FAMILY 5. COBITIDAE

This family contains a large number of species in the genus *Noemacheilus*. Subgenera are given generic rank by some authors, e.g. see Berg (1948-1949), Bănărescu (1977) and Mirza (1975).

1. *Noemacheilus (Triplophysa) akhtari* (Vijayalakshmanan, 1950). Helmand River at Farakhollum (Farakhulm 34°31'N, 68°08'E), about 16 km south of Gardan Dival (34°30'N, 68°15'E) (Vijayalakshmanan, 1950). May be a synonym of *N. griffithi griffithi* according to Bănărescu and Nalbant (1966).

2. *Noemacheilus (Schistura) alepidotus* Mirza and Bănărescu, 1970. As *N. a. alepidotus* from the Swat River drainage and the Ghowr Band (= Chorband) River in the Kabul River basin (Mirza, Bănărescu and Nalbant, 1970; Moravec and Amin, 1978). Previously mis-identified as *N. rupicola inglisi* Hora, 1935 by Ahmad and Mirza (1963). First described as a subspecies of *N. rupicola* by Mirza and Bănărescu (Mirza, Bănărescu and Nalbant, 1970).

3. *Noemacheilus (Triplophysa) amudarjensis* Rass, 1929. Amu Darya from Chardzhou (39°06'N, 63°34'E) to Aivadzh (presumably on the Kafirnigan River) as *N. a. amudarjensis* Rass, 1929 and as *N. a. choresmi* Berg, 1932 in the Amu Darya delta (Berg, 1932a; Berg, 1948-1949).

4. *Noemacheilus (Schistura) baluchiorum* Zugmayer, 1912. Sistan and from Kajaki (= Kajkai) (the town is listed at 32°16'N, 65°03'E and the dam lies northeast) in the Helmand River drainage. Regarded by Bănărescu and Nalbant (1966) as a valid species but Berg (1949) placed it in the synonymy of *N. montanus* (McClelland, 1839) from Simla. Mirza, Bănărescu and Nalbant (1970) considered specimens from Kajaki to represent a new species but do not give a formal description and name.

5. *Noemacheilus (Paracobitis) boutanensis* (McClelland, 1842). Sistan and the Helmand River drainage (Hora, 1929; Bănărescu and Nalbant, 1966).

6. *Noemacheilus (Triplophysa) brahui* Zugmayer, 1912. Nushki and Pishin in Pakistani Baluchistan

near the border with Afghanistan (Zugmayer, 1912; Hora, 1933a), the Pishin Lora drainage in Pakistan (Mirza, 1974), and Kabul (Bănărescu and Nalbant, 1966).

7. * *Noemacheilus (Triplophysa) choprai* Hora, 1934. Chitral and Swat River drainages in Pakistan (Hora, 1934; Ahmad and Mirza, 1963). Probably a subspecies of *N. stenurus* q.v.

8. * *Noemacheilus (Schistura) corica* (Hamilton, 1822). Bannu (32°59'N, 70°36'E) in Pakistan in the drainage of the Kurram River (Hora, 1933a).

9. *Noemacheilus (Paracobitis) cristatus* Berg, 1898. Ashkhabadka River (? at Ashkhabad), northern Kopet-Dag streams east of Archman (38°33'N, 57°09'E) and west of the Tedzhen River (Berg, 1948-1949), Murgab River and at Qual-el Chabrak, 180 km east of Herat (possibly Shahrak 34°06'N, 64°18'E) and at Obeh (or Owbeh 34°22'N, 63°10'E) in the drainage of the Harirud (Bănărescu and Nalbant, 1966), Helmand River drainage, Zhob River drainage of Pakistan (Mirza, 1974).

10. * *Noemacheilus (Deuterophysa) dorsalis* (Kessler, 1872). Amu Darya basin in the mountains, Kafirnigan River. As *N. d. kafirnigani* Turdakov, 1946 in the Kafirnigan River (Berg, 1948-1949).

11. *Noemacheilus (Triplophysa) farwelli* Hora, 1935. Helmand River (Hora, 1935; Bănărescu and Nalbant, 1966).

12. *Noemacheilus (Paracobitis) ghazniensis* Bănărescu and Nalbant, 1966. Ghazni River at Ghazni (town is at 33°33'N, 68°26'E and the dam lies northwest) (Bănărescu and Nalbant, 1966).

13. *Noemacheilus (Triplophysa) griffithi* (Günther, 1868). Type form in Sistan basin, Arghandab River near Kandahar (Hora, 1929; 1935), *N. g. afghana* (Hora, 1935) in Kabul River near Kabul and other localities in the drainage of the Kabul River such as the Sar Chashmeh (34°26'N, 68°39'E), Arbarp (?) about 18 km west of Kabul, Kowtal-e-Shebar, Ownay (= Unai) valley (Kabul sources) Jannichel (? probably Kabul River drainage), Chahiltran(?) stream, Ghowr Band (= Chorband) River, Salang River, brooklets at Kariz-e Mir (34°38'N, 69°03'E) and Paghman River at Paghman (34°36'N, 68°57'E) (Hora, 1933b; 1935; Moravec and Amin, 1978), and *N. g. naziri* Ahmad and Mirza, 1963 in the Swat River, Pakistan (Bănărescu and Nalbant, 1966; Bănărescu and Nalbant, 1975). The fish listed as *Cobitis marmorata* Heckel by McClelland (1842) was probably *N. griffithi* according to Hora (1929).

14. *Noemacheilus (Schistura) kessleri.* Günther, 1889. Pishin Lora drainage in Pakistan (Mirza, 1974), Nushki and Pishin in Pakistani Baluchistan near the border with Afghanistan (Günther, 1889; Hora, 1933a), Jannichel (? probably Kabul River drainage), Ghazni River at Ghazni (town is at 33°33'N, 68°26'E and the dam lies northwest) (Bănărescu and Nalbant, 1966). Nikolski (1900) recorded this species from Keliate-marg (?) incorrectly placing this locale in the Zirkuh (or probably Kuh-e Ziri (32°48'N, 59°50'E) of Iran. Berg (1949) stated this locality to be in the Nehbandan (31°32'N, 60°04'E) district which drains southeast to Sistan. As *N. k. turcomanus* Nikolsky, 1947 in the Kushka River (Berg, 1948-1949).

15. *Noemacheilus (Triplophysa) kullmanni* Bănărescu and Nalbant, 1975. Ab-e-Nawar spring, presumably at Dasht-e-Navar 33°44'N, 67°45'E (Bănărescu and Nalbant, 1975).

16. * *Noemacheilus (Oreias) kuschakewitschi* Herzenstein, 1890. As *N. k. pardalis* Turdakov, 1941 from the Dyushambinka River in Kafirnigan River basin. Berg (1948-1949) and Turdakov (1963) regarded this subspecies as a full species but Bănărescu and Nalbant (1966) listed it as a subspecies.

17. *Noemacheilus (Paracobitis) longicauda* (Kessler, 1872). Tedzhen and Murgab River drainages (Berg, 1948-1949), Khanabad River at Khanabad (Moravec and Amin, 1978). Regarded as a distinct species by Bănărescu and Nalbant (1966) but placed as a subspecies of *N. malapterurus* by Berg (1948-1949).

18. *Noemacheilus (Paracobitis) malapterurus* (Valenciennes, 1846). As *N. m. longicauda* (Kessler, 1872) in the Tedzhen, Murgab, Amu Darya and Panj River (Berg, 1948-1949), and as *N. malapterurus macmahoni* Chaudhuri, 1909 in the Helmand River in Sistan (Bănărescu and Nalbant, 1964). Specimens from the Tedzhen and Murgab Rivers may be referable to *N. malapterurus macmahoni* or *N. malapterurus malapterurus* (Bănărescu and Nalbant, 1964). Bănărescu and Nalbant (1966) revised their earlier synonomy of *N. machmahoni* with *N. malapterurus* and placed it in *N. rhadineus* Regan, 1906. In addition *N. longicauda* was listed as a distinct species.

19. * *Noemacheilus (Schistura) naseeri* Ahmad and Mirza, 1963. Described as a subspecies of

N. punjabensis from the Swat River drainage but regarded by Mirza (1973) as a distinct species.

20. *Noemacheilus (Orthias) oxianus* Kessler, 1877. Amu Darya from its mouth to Kirovabad on the Panj River (Berg, 1948-1949).

21. * *Noemacheilus (Schistura) pakistanicus* Mirza and Bănărescu, 1969. Zhob River drainage in Pakistan (Mirza, Bănărescu and Nalbant, 1969; Mirza, 1974).

22. *Noemacheilus (Schistura) prashari* Hora, 1933. As *N. p. lindbergi* Bănărescu and Mirza, 1965, reported from a Farah River tributary at Siaw (but Si Av is at 32°13'N, 62°43'E in the Khospas River drainage) and as *N. p. haarlovi* Bănărescu and Nalbant, 1966 from Pirzada (presumably Pir Zadeh, 31°38'N, 65°03'E) west of Kandahar in the Helmand River drainage (Bănărescu and Mirza, 1965; Bănărescu and Nalbant, 1966; Mirza, Bănărescu and Nalbant, 1969).

23. *Noemacheilus (Paracobitis) rhadineus* Regan, 1906. Helmand River at Kajaki (= Kajkai) (the town is listed at 32°16'N, 65°03'E and the dam lies northeast), Tedzhen and Murgab Rivers, and Zhob River drainage of Pakistan (Mirza and Angvi, 1972; Bănărescu and Nalbant, 1966). *N. macmahoni* Chaudhuri, 1909 from Sistan is a synonym (Bănărescu and Nalbant, 1966).

24. *Noemacheilus (Schistura) sargadensis* Nikolsky, 1899. As *N. s. turcmenicus* Berg, 1932 from a stream near Gyaurs (37°47'N, 58°44'E) east of Ashkhabad and Kel'te-chinar River (?) near Gyaurs (Berg, 1932a; 1948-1949) and as *N. s. paludani* Bănărescu and Nalbant, 1966 from a tributary of the Pech River in the Kabul River basin at Gusalek (?) (Bănărescu and Nalbant, 1966). Placed in the genus *Schistura* by Bănărescu (1977). The type form is found in Iranian Baluchistan (Berg, 1949). Also reported as *N. sargadensis*, from the Bejestan High Land basin in Iran, possibly in a drainage shared with Afghanistan (Saadati, 1977).

25. * *Noemacheilus (Triplophysa) stenurus* Herzenstein, 1888. As *N. s. choprai* Hora, 1934 from the Chitral and Swat River drainages in Pakistan (Ahmad and Mirza, 1963) and as the type form from the effluents of the Helmand (Regan, 1906). Hora (1922) placed these specimens in *N. tenuis*. Mirza (1973) regarded this as a valid species while Berg (1948-1949) regarded *N. stenurus* as a synonym of *N. stoliczkae* (q.v.).

26. *Noemacheilus (Triplophysa) stoliczkae* (Steindachner, 1866). Upper Amu Darya (the Aq Su), Gunt River at Khorog (37°30'N, 71°36'E), Tanymas River at Kyzyltokoy (?) (river listed at 38°25'N, 72°40'E in the drainage of the Bartang River), upper Helmand River, Indus River mountain basins (Day, 1876; Berg, 1932b; Berg, 1948-1949), and the Bamian River near Bamian (Moravec and Amin, 1978). *N. s. uranoscopus* Kessler, 1872 was listed as from the basin of the Amu Darya, the Indus, the Helmand? (sic), and the Band-e-Amir (brooklets flowing out of Band-e-Amir lakes) (Berg, 1948-1949; Moravec and Amin, 1978). Berg (1948-1949) considered *N. stenurus* Herzenstein, 1888, recorded from the effluents of the Helmand River, to be a synonym. Hora (1922) considered specimens identified as *N. stoliczkae* from Sistan (Annandale and Hora, 1920) to be *N. tenuis*.

27. *Noemacheilus (Triplophysa) tenuis* Day, 1876. Upper Amu Darya drainage in the Pamirs (the Aq Su), Koshk on the Koshk River, Gunt River, Sistan (Day, 1876; Alcock, 1898; Berg, 1948-1949; Annandale and Hora, 1920; Hora, 1922). Regarded as a distinct species by Bănărescu and Nalbant (1966) but as a subspecies of *N. stoliczkae* by Annandale and Hora (1920).

28. *Sabanajewia aurata* (Filippi, 1865). Tedzhen and Murgab Rivers and tributaries of the Aral Sea (Bănărescu and Nalbant, 1966). As *S. aurata aralensis* (Kessler, 1877) in the Amu Darya basin to the Pamirs (Berg, 1948-1949) but distributionally restricted to the lower Amu Darya by Bănărescu and Nalbant (1966).

ORDER 4. SILURIFORMES

FAMILY 6. BAGRIDAE

1. *Mystus seenghala* (Sykes, 1841). Afghanistan (Günther, 1864). *Bagrus lamarii* Valenciennes, 1839 is a synonym (Misra, 1976).

2. *Mystus tengara* (Hamilton, 1822). Afghanistan (Günther, 1864). *Pimelodus anisurus* McClelland, 1842 from the Kabul River at Jalalabad is possibly a synonym (Day, 1875-1878).

3. *Rita rita* (Hamilton, 1822). Reported from the Kabul River and Khyber Pass by McClelland (1842) as *Pimelodus rita*.

FAMILY 7. SILURIDAE

Silurus afghana Günther, 1864 was described from Afghanistan in error since collections were mixed. This species is from Assam (Misra, 1976).

1. *Ompok bimaculatus* (Bloch, 1797). Afghanistan (Mirza, 1972).

2. *Ompok canio* (Hamilton, 1822). Reported from Afghanistan as *Silurus indicus* McClelland, 1842 (Misra, 1976) from the Kabul River at Jalalabad.

3. *Ompok pabda* (Hamilton, 1822). Kabul River in Afghanistan (Day, 1880), Wana Toi, a tributary of the Gumal River in Pakistan (32°20′N, 69°30′E) (Regan, 1914).

4. *Silurus glanis* Linnaeus, 1758. Amu Darya, Qonduz River at Qonduz (Berg, 1948-1949; Moravec and Amin, 1978), Murgab (Nikolski and Tzentilovich, 1951).

5. *Wallago attu* (Schneider, 1801). Pishin Lora drainage of Pakistan (Zugmayer, 1913).

FAMILY 8. SCHILBEIDAE

1. * *Clupisoma naziri* Mirza and Awan, 1973. Khiali River near Khatki (34°10′N, 71°35′E) a tributary of the Kabul River in Pakistan (Mirza and Awan, 1973). Listed as a subspecies of *C. murius* Hamilton, 1822 by Mirza (1975).

FAMILY 9. SISORIDAE

1. *Glyptosternum akhtari* Silas, 1952. Bamian River (Hora and Silas, 1952).

2. *Glyptosternum reticulatum* McClelland, 1842. Upper reaches of the Amu Darya, Bamian River, Kabul River drainage including the Sar Chashmeh (34°26′N, 68°39′E), Panjsher River, near Golbahar (35°09′N, 69°17′E), Salang River, brook at Estalef (34°50′N, 69°05′E) Paghman River at Paghman (34°36′N, 68°57′E) and Surchab (presumably the Sorkh Rud but may be the Sorkh Ab) River, and Chitral valley (McClelland, 1842; Hora and Silas, 1952; Mirza, 1973; 1975; Moravec and Amin, 1978), Andarab River at Banu (presumably Banow 35°38′N, 69°15′E) (Hora, 1935). Hora (1933b; 1934) and Berg (1948-1949) listed synonyms which include *Exostoma stoliczkae* Day, 1876, *Exostoma oschanini* Herzenstein, 1889 and *Exostoma labrax* Gratsianov, 1907.

3. * *Glyptothorax cavia* (Hamilton, 1822). Khiali River, probably near Khatki (34°10′N, 71°35′E), a tributary of the Kabul River in Pakistan and also from the Swat River drainage of Pakistan (Mirza, 1973).

4. *Glyptothorax jalalensis* Balon and Hensel, 1970. Kabul River tributary near Jalalabad (Balon and Hensel, 1970).

5. * *Glyptothorax naziri* Mirza and Naik, 1969. Zhob River drainage of Pakistan (Mirza and Naik, 1969).

6. * *Glyptothorax punjabensis* Mirza and Kashmiri, 1971. Khiali River near Khatki (34°10′N, 71°35′E) a tributary of the Kabul River in Pakistan (Mirza, 1973; Mirza and Hameed, 1974).

7. * *Glyptothorax stocki* Mirza and Nijssen, 1978. Swat River in the Kabul River drainage of Pakistan. This species was misidentified as *G. platypogonoides* (Bleeker, 1855) by previous authors (Mirza and Nijssen, 1978).

ORDER 5. ATHERINIFORMES
FAMILY 10. POECILIIDAE

1. # *Gambusia affinis* (Baird and Girard, 1853). An introduced species found in Sistan and the Tedzhen and Murgab Rivers as *G. a. holbrooki* (Girard, 1859) (Turdakov, 1963; Muhomedieva; 1967; Coad, 1979) and in the Amu Darya basin (Turdakov, 1963; Amanov, 1974), in a pool near the Khanabad River at Khanabad and in the Kabul River near Kabul (subspecies not noted) (Moravec and Amin, 1978). *G. a. patruelis* (Baird and Girard, 1853) is reported from the Pishin Lora drainage (Mirza and Naik, 1965).

ORDER 6. GASTEROSTEIFORMES
FAMILY 11. GASTEROSTEIDAE

1. * *Pungitius platygaster* (Kessler, 1859). As *P. platygaster aralensis* (Kessler, 1877) from the Aral Sea and Amu Darya delta (Berg, 1948-1949).

ORDER 7. PERCIFORMES
FAMILY 12. PERCIDAE

1. * *Gymnocephalus cernua* (Linnaeus, 1758). Amu Darya delta (Berg, 1948-1949). Bănărescu (1964) indicated a distribution upriver in the Amu Darya to Afghanistan.

2. * *Perca fluviatilis* Linnaeus, 1758. Amu Darya from the Aral Sea to Sultan-Uizdag (ca. 42°05′N, 60°40′E) (possibly to Turtkul (41°28′N, 61°00′E)) (Berg, 1948-1949).

3. * *Stizostedion lucioperca* (Linnaeus, 1758). Amu Darya delta (Berg, 1948-1949). Bănărescu (1964) indicated a distribution in the upper reaches of the Amu Darya in Afghanistan.

FAMILY 13. GOBIIDAE

1. # *Rhinogobius similis* Gill, 1860. Reported from a pool near the Khanabad River at Khanabad (Moravec and Amin, 1978).

FAMILY 14. CHANNIDAE

1. *Ophiocephalus gachua* Hamilton, 1822. Afghanistan in the Kabul River drainage (Day, 1876; 1880; Nikolsky, 1899; Balon and Hensel, 1970). *O. montanus* McClelland, 1842 from Jalalabad is a synonym (Günther, 1861; Day, 1880; Berg, 1949).

2. *Ophiocephalus punctatus* Bloch, 1793. Afghanistan in the Kabul River drainage. *O. indicus* McClelland, 1842 from the Kabul River is a synonym (Day, 1875-1878; Day, 1880).

FAMILY 15. MASTACEMBELIDAE

1. * *Mastacembelus armatus* (Lacépède, 1800). Zhob River drainage of Pakistan (Mirza, 1975). Sufi (1957) did not report it from Afghanistan but Day (1876) mentioned its occurrence without further details.

Discussion

The ichthyofauna of Afghanistan is impoverished, compared with the lowland Indus basin to the east, as a consequence of the isolation and altitude of its drainages. The greatest diversity in species is found in the smallest of the three major drainages, the Kabul River basin, which drains to the Indus River. The majority of the species are Oriental and have ascended the Kabul River within the borders of Afghanistan. This includes all the Cyprinidae except the Schizothoracini, the Siluriformes except *Glyptosternum reticulatum* and *Glyptothorax jalalensis*, and the Channidae. The upper reaches of the Kabul basin are dominated by a variety of snow trout (Schizothoracini) and cobitid species which are adapted to cold, fast mountain streams.

The second largest drainage (in its Afghanistan basin) is that of the Amu Darya which flows into the Aral Sea and has the second largest number of species. The Aral Sea and Amu Darya fauna includes the endemic relict genera *Aspiolucius* and *Pseudoscaphirhynchus* and such endemic species as *Alburnoides taeniatus, Capoetobrama kuschakewitschi, Leuciscus lehmanni, Noemacheilus amudarjensis, N. oxianus* (Berg, 1948-1949) and *Glyptosternum akhtari*. The fauna of the Aral Sea and Amu Darya shows evident affinities with the Caspian Sea fauna and transgressions have linked these basins at various times in the past including the end of the Pleistocene via the Uzboi valley (Berg, 1948-1949). Some species of the Amu Darya and Caspian basins are identical even at the subspecies level, eg. *Alburnoides bipunctatus eichwaldi* and *Aspius aspius taeniatus*, and provide evidence for a later transgression than the one which allowed access to the Amu Darya of the ancestors of endemic genera. Species found in common between the Amu Darya and Caspian Sea basins include *Acipenser nudiventris, Salmo trutta, Barbus brachycephalus, B. capito, Capoeta capoeta, Pelecus cultratus, Rutilus rutilus, Noemacheilus malapterurus, Sabanajewia aurata* and *Silurus glanis*. The lower Amu Darya and Aral Sea proper contain additional species shared with the Caspian basin but not reported from Afghanistan (see Berg, 1948-1949). The fish fauna of the upper Amu Darya is impoverished in comparison with that of the lower parts of the drainage basin (Shaposhnikova, 1950). Certain species found in the upper Amu Darya are also found in the upper reaches of adjacent drainages, for example *Glyptosternum reticulatum* is also found in the Kabul system and the Tarim basin. Berg (1948-1949) attributed this common fauna to headwater capture and impoundment of rivers by glaciers in the Pleistocene such that lakes were formed and different basins connected.

The Helmand River drainage is the largest of the three major drainage basins of Afghanistan and has the least diverse ichthyofauna in terms of number of species. It apparently lacks an extended or extensive past connection to a richer faunal area like the Kabul and Amu Darya basins. Only the families Cyprinidae and Cobitidae are found here. Seven of 27 species are found also in the Amu Darya (including Hari-Tedzhen and Murgab drainages) and seven others are found in the Indus River drainages. *Noemacheilus stoliczkae* and *Schizothorax intermedius* are found in all three major drainages presumably as a result of headwater capture. Of the remaining eleven species *Hemigarra elegans, Noemacheilus brahui* and *N. prashari* are found in other drainages of eastern Iran and Pakistani Baluchistan and *Schizothorax anjac, S. schumacheri, S. zarudnyi, Noemacheilus akhtari, N. boutanensis, N. farwelli, N. ghazniensis* and *N. kullmani* are endemic. Reservations about the specific validity of the first two species have been expressed and the systematics of *Noemacheilus* leaves much to be desired.

The Murgab and Hari-Tedzhen basins contain a fauna similar to the Amu Darya and as Berg (1948-1949) pointed out this is indicative of the former connection of these rivers. Eight species are found in all three systems (if *Leuciscus latus* is a subspecies of *L. lehmanni*), a further two are found in the Murgab and Amu Darya only (*Noemacheilus tenuis* and *Silurus glanis*) and it may be noted that the Murgab lies closer to the Amu Darya than the Hari-Tedzhen, and the remaining species have a wider distribution across southwest Asia.

The minor drainages of the Chamkani-Kurram and Zhob-Gowmal Rivers are part of the Indus basin and their fauna reflects this strongly with the addition of three endemic species *Tor zhobensis, Noemacheilus pakistanicus* and *Glyptothorax naziri* and such species of wider distribution in southwest Asia west of the Indus basin as *Cyprinion watsoni, Garra rossica* and *Noemacheilus cristatus*.

The fauna of the Pishin Lora also includes Indus elements (*Wallago attu* and *Crossocheilus latius*) and the remainder are more widely distributed in southwest Asia.

I have resisted the temptation to assign areas of Afghanistan to named faunal provinces and regions as this is a static concept. Both Berg (1948-1949) and Bănărescu (1977) named areas in some detail. The area evidently contains a mixture of Oriental and Palaearctic species, of northern and southern species and of high and low altitude-adapted species. A number of species have been described as endemic to Afghanistan, particularly in the genera *Schizothorax* and *Noemacheilus* but the systematics of these genera are poorly understood and the species may well prove ultimately to be synonymous with more widely distributed species. Bearing this in mind and the fact that some species have a wide distribution in southwest Asia, the fauna is about equally divided between Oriental and Palaearctic species. The fauna is dominated by Cyprinidae (56.9%), Cobitidae (24.5%) and to a lesser extent by Siluriformes (11.8%).

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Table 1. Distribution of fishes of Afghanistan and adjacent drainages (Continued)

Drainage	Kabul	Chamkani-Kurram	Zhob-Gowmal	Pishin Lora	Helmand-Sistan	Hari-Tedzhen	Murgab	Amu Darya	Number of Drainages Per Species/ Subspecies
Species									
98. *Glyptothorax jalalensis*	+	–	–	–	–	–	–	–	1
99. *Glyptothorax naziri*	–	–	+	–	–	–	–	–	1
100. *Ophiocephalus gachua*	+	–	–	–	–	–	–	–	1
101. *Ophiocephalus punctatus*	+	–	–	–	–	–	–	–	1
102. *Mastacembelus armatus*	–	–	+	–	–	–	–	–	1
Number of species per drainage	44-45	9	15	6	27	12	15	32-33	
Species per drainage as % of total ichthyofauna	27.7	5.6	9.3	3.7	16.7	7.4	9.3	20.4	

* Namaksar drainage of Iran and presumably Afghanistan. Subspecies not defined (see text for details)